

**CLAIMS:**

1        1.     A method of providing secure communications between a first wireless  
2     unit and a second wireless unit, said method comprising the step of:  
3                providing a common key value to a first wireless unit and for use in secure  
4     communications over at least one wireless communications system between said first  
5     wireless unit and said second wireless unit having said common key.

1        2.     The method of claim 1 wherein said step of providing comprising the  
2     steps of:  
3                generating a first key value corresponding to said first wireless unit;  
4                generating a common key value; and  
5                sending said common key value to said first wireless unit using said first key  
6     value.

1        3.     The method of claim 2 comprising the steps of:  
2                generating a second key value corresponding to said second wireless unit; and  
3                sending said common key value to said second wireless unit using said second  
4     key value.

1        4.     The method of claim 2 wherein said step of generating comprises the  
2     step of:  
3                generating said first key value as a function of a first root key known only at  
4     said first wireless unit and a home wireless communications system for said first  
5     wireless unit.

1        5.     The method of claim 3 wherein said step of generating comprises the  
2     step of:

3 generating said second key value as a function of a second root key known  
4 only at said second wireless unit and at a home wireless communications system for  
5 said second wireless unit.

1 6. The method of claim 2 wherein said step of providing comprises the  
2 steps of:

3 encrypting said common key using said first key value; and  
4 transmitting said common key encrypted with said first key value to said first  
5 wireless unit.

1 7. The method of claim 3 wherein said step of providing comprises the  
2 steps of:

3 encrypting said common key with said second key value; and  
4 transmitting said common key encrypted with said second key value to said  
5 second wireless unit.

1 8. The method of claim 2 wherein said step of generating said common  
2 key value comprises the steps of:  
3 generating said common key as a function of at least one of said first key value  
4 and said second key value.

1 9. The method of claim 1 comprising the step of:  
2 generating said common key as an encryption key.

1 10. The method of claim 1 comprising the step of:  
2 generating said common key as a session key.

1 11. The method of claim 1 comprising the step of:

2 generating a first session key value as a function of a first root key known only  
3 at said first wireless unit and a home wireless communications system for said first  
4 wireless unit; and

5 generating said common key as a session encryption key being a function of at  
6 least said first session key value.

1 12. The method of claim 1 comprising the steps of:

2 mutually producing said common key by a first wireless communications  
3 system for said first wireless communications system and a second wireless  
4 communications system for said second wireless unit.

1 13. A method of providing secure communications between a first wireless  
2 unit and a second wireless unit, said method comprising the step of:

3 receiving by a first wireless unit from at least one wireless communications  
4 system a common key value for use in secure communications over at least one  
5 wireless communications system between said first wireless unit and said second  
6 wireless unit having said common key.

1 14. The method of claim 13 comprising the steps of:

2 generating a first key value corresponding to said first wireless unit; and  
3 obtaining said common key value by said first wireless unit using said first  
4 key value.

1 15. The method of claim 14 comprising the steps of:

2 generating a second key value corresponding to said second wireless unit; and  
3 obtaining said common key value by said second wireless unit using said  
4 second key value.

1           16.    The method of claim 14 wherein said step of generating comprises the  
2    step of:

3           generating said first key value as a function of a first root key known only at  
4    said first wireless unit and a home wireless communications system for said first  
5    wireless unit.

1           17.    The method of claim 14 wherein said step of providing comprises the  
2    steps of:

3           decrypting said common key using said first key value.

1           18.    The method of claim 13 comprising the step of:  
2    receiving said common key as an encryption key.

1           19.    The method of claim 13 comprising the step of:  
2    receiving said common key as a session key.

1           20.    The method of claim 13 comprising the steps of:  
2    generating a first session key value as a function of a first root key known only  
3    at said first wireless unit and a home wireless communications system for said first  
4    wireless unit; and  
5           receiving said common key as a session encryption key being a function of at  
6    least said first session key value.